· Mint of the United States That the bonne to receive your letter of the 14th of Cololies, accompanied by a "Homeral of sein Tench twenger, programy Congress to Salsto tale his invention called freman deline, in place of the Coffee Comme of the Menter State." Va this memorial you ask my finishes to be laid before the Committee in Funnie of the Sunte, at the prosent dellies . Then accordingly give to the matter my full consideration, at how her led to from an opinion informable to the project of On Fuchtinger, of waters which I new forend respectfully to day lufor you. It. The General Solar, abogestion, in Pachfring is a complicated and may rawallo comprised, in is shown by the following table of unalysed; of spice of which outs and Michigan war and the Down of the will be found det subhits the confirmation of the list area For manifestand by Sterninger at Herting I willia) elow that of Fachfory, a compound long Since completion in China, and an alyse to light English som or war Source As B. aurolin hairt of Fachfory, Said & cost in Chair our front its weight in believe, RG104 entry 1 box 19 Jan 1838

analyted by Or Type; cho. 4 a compound known in Central Germany for more them eighty yours, or the Subler White Copper, analysed by Steferstein; No 5, Augenton manufactions in Eng. land, analysed in 1833 by Perf. fun C. Berth, of the Frenklin histitute.

Of the , 100 parts an confined as follows: Coffee Line . Sichel. how.

11.1 _ 53. _ 29. _ 18.

2 _ 40.6 _ 43.8 _ 15.6

3 _ 40.4 _ 25.4 _ 31.6 _ 2.6

5 - 58.3 - 17. - 20.9 - 1.2 - 0.8 chall

In the her field analysed the irre is estimated

with the mobile, and colatt is included in the michel of all the confounds. I at last the ferning Silver in a quintuple compound, of may voriable and uncertain proportions: a desire disection, un questionally, to its coupling must in cominged.

Id. The Jugary eljetime motel and to of hell might, if the difficult raise tis of the compared could be leadily dietiquished by their external character. But the is by we man the case. It is only

by experienced have that any difficult her

31 - But a mon deriver, ale, in my judy unity a fatal objection, is, that equal difficult by recover in distinguishing the muites by Chic suisal analyses . Suprim Booth, in warmen to agentino proposed by som on this family that makes the following Statement - Are wordword and expensive alloy is meetlary, to determine the proportions of the inquitients in Argenton; requiring for one analysis at least 4 _ 88. _ _ 8if _ 1.7 _ 11.6 delphur time weeks . The copper may readily be extended ted; the arterie, if there he some present, with much more difficulty; the amount of in is not estimated accordance without much timble; it is encedingly difficult to defaut the colalt and nichel; and it is almost impossible, for an experienced hand, to soparate the diese and wichel with accuracy. -How different is this from the allay of the continations of gold, silver, and effected tate into the punt coins of all contines? This allay is made with cate, and safe without less of time, and with an accuracy which is almost mathematical.

fel - It is not only difficult to de turning the proportions of the inquestints in Guman Silver already frester, but it is excurdingly difficult to prepare it in definite proportions from these inquestions, of they are found - Nicht, which is the characteristic consiluent of the Generalities is chifly obtained from a minute callets When the inquedicate are introduced into the curible, and fuled together, a feeting of the Line is valatelized, and must be uplace by a fush quantity, and they aler it is an undend impossible to obtain a com pound of uniform perfections. 5th. Souther Serious objection to the

ut of Guman deline in comago in the cale with which it may be imitated by less enfective propertient of the Same in quedints, or by other compounds of

might indust enable us to distinguist the latter substinces from Juman Silines but who would give this cuful examination to coins of low value? The dayer of ditelive small headly be such as to date the contespector, when so quat a gain white offer - wichel, and from the reface of he proceededly offered. not be practically obtained, wholly free that it have a course man weemblance to from whall, and it litime contains arraine bilant, so that last so contained ment and irres, - and as their metals are in soir and lots might preparely occur, from all properties, the conference into thick conformation the the hinds of coins. Our they with carnet be sunformed. - But a fruit secretion, - of gold, delines and appropriate then is another difficulty in the manufaction do not offer may buck difficulty. state is the executarity in the price of the

still list cost, such as penter, butanise, Ver, or by time - I careful examination

The the last objection that I shall Jumme Silver - Michoning coffee at 25 contra fromd, time at 5 couts, and might at 75 cuts, the materials entering with a pour (and dupois) of Hernigers of gentine would cost It ents, and of the Chinese Packfing analysed by English inly 24 cuts. Now the our copper planelits cost us 32 cents per pound; and, if the above estimate from the engeliants gives som and approprie

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makin to the true value of the Greman Silver, the only advantage promined from its sale titution for coffee in Cominge is without frem ation, for the majet of the coins could not be diminished. I have that the last impulsed german Silve costs much more than the whom hated in determining the just might to cent, which wight 46 grains, would at If cuts a freed for the mutat, be troubt but less them our fifth of cent. , and to he of the professed value would dequire the soutal to be writte \$1.52 per from the the minute of Dr. Fuchtwayer seems to imply that the German Silver is his inner ting at to seffer that suffing ground the suffely to the Mint This searchy meelday for me to state that there is see just from dation for setting of these

the the whole, it is my decided frimin that it would not be proper to alundon our coffee coinage in favore of the proposed dute tituto; and you will observe that in presenting this opinione, I how not thought it must any to bing to your views the many advantages below. estimate, but we cannot infer from this is to the copper comage, its profit to the the price at which it could be made government, the only offset to the expenses here in a laye scale . - " holed, if ofthe neut; -) the hell which it has a the project of Or. Fenchtvanger should be the kabite of the people; - and the on loss adopted, a gent difficulty went he frem which would be sustained by its suffered him, or the confusion which would arise he given to the new cries. This Specime from a doubt circulation of the Some chall. Jan, Sie, most respectfully from failtful sewant Queter U. S. Minds

Men. The Ab. Benton . Starter , Ve. Ver

RG104 entry 1 box 19 Jan 1838

Mint of the United States January 1, 1838

Sir,

I had the honor to receive your letter of the 16th of October, accompanied by a "Memorial of Lewis Feuchtwanger, praying Congress to substitute his invention called German Silver, in place of the copper coinage of the United States." On this memorial you ask my opinions, to be laid before the committee on Finance of the Senate at the present session. I have accordingly given to the committee my full consideration, and have been led to form an opinion unfavorable to the project of Dr. Feuchtwanger, material which I now proceed respectfully to lay before you.

First. The German Silver, Argentan, or Packfong, is a complicated and many variable compound, as is shown by the following table of analysis; in which:

No. 1 exhibits the composition of the best Argentan manufactured by Henniger, at Berlin, in Prussia,

No. 2 that of Packfong, a composition long since employed in China, and analyzed by Engstom;

No. 3 another kind of Packfong, said to cost in China one fourth its weight in silver, analysed by Dr. Fyfe;

No. 4 a compound known in Central Germany for more than eighty years as the Spehler White Copper, analyzed by Keferstein;

No. 5 Argentan manufactured in England, analyzed in 1833 by Prof. James C. Booth, now of the Franklin Institute.

Of these	100°	narts are	compound	ed	as f	fo11	ows:
OI mose,	100	parts are	COMPOUNT	· · ·	uo i	$\mathbf{v}_{\mathbf{I}}$	O * * D .

No	Copper	Zinc	Nickel	Iron	Other
1	53.0	29.0	18.0		
2	40.6	43.8	15.6		
3	40.4	25.4	31.6	2.6	
4	88.0	0.0	8.7	1.7	0.6 Sulphur
5	58.3	17.0	20.9	1.2	0.8 Cobalt, 0.7 Silver & Arsenic

In the two first analyzed, the iron is estimated with the nickel, and cobalt is included in the nickel of all the compounds.

It appears, then that the German Silver is at least a quintuple compound, of many variable and uncertain proportions: a serious objection unquestionably, to its employment in coinage.

2nd The foregoing objection would be of less weight if the different varieties of the compound could be readily distinguished by their external characters. But this is by no means the case. It is only by experienced persons that any difference between them can be detected.

3rd But a more serious, and, in my judgement, a fatal objection, is, that equal difficulty occurs in distinguishing the varieties by chemical analyses. Professor Booth, in answer to a question

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proposed by me on this point, makes the following statement: "An arduous and expensive assay is necessary, to determine the proportions of the ingredients in Argentan; requiring for one analysis at least two weeks. The copper may readily be estimated; the arsenic, if there be some present, with much more difficulty; the amount of iron is not ascertained without much trouble; it is exceedingly difficult to separate the cobalt and nickel with accuracy." How different is this from the assay of the combinations of gold, silver, and copper, which alone enter into the present coins of all countries? This assay is made with ease, without loss of time, and with an accuracy which is almost mathematical.

4th It is not only difficult to determine the proportions of the ingredients in German Silver already formed, but it is exceedingly difficult to prepare it in definite proportions from these ingredients, as they are found. Nickel, which is a characteristic constituent of German Silver, is chiefly obtained from a mineral called copper-nickel, and from the refuse of smelt-works. It is never found, and cannot be practically obtained, wholly free from cobalt, and it likewise contains arsenic, and iron; and as these metals are in variable proportions, the compound into which they enter cannot be uniform. But there is another difficulty in the manufacture. When the ingredients are introduced into the crucible, and fused together, a portion of the zinc is volatilized, and must be replaced by a fresh quantity, and thus also it is rendered impossible to obtain a compound of uniform proportions.

5th Another serious objection to the use of German Silver in coinage is the ease with which it may be imitated by less expensive proportions of the same ingredients, or by other compounds of still less cost, such as pewter, britannium, etc. or by tin. A careful examination may indeed enable us to distinguish the latter substances from German Silver; but who would give this careful examination to coins of low value? The danger of detection would hardly be such as to deter the counterfeiter, where so great a gain would be offered.

6th It is also an objection to this compound that it has a near resemblance to Silver, so that embarrassment and loss might frequently occur, from compounding the new kinds of coins. Our present coins, of gold, silver and copper do not offer any such difficulty.

7th The last objection that I shall state is the uncertainty in the price of the German Silver. Reckoning copper at 25 cents a pound, zinc at 5 cents, and nickel at 75 cents, the materials entering into a pound (avoirdupois) of Henninger's Argentan would cost 28 cents, and of the Chinese Packfong analyzed by Engstom only 24 cents. Now our copper planchets cost is 32 cents per pound; and, if the above estimate from the ingredients gives even an approximation to the true value of the German Silver, the only advantage perceived from its substitution for copper in coinage is without foundation, for the weight of the coins could not be diminished. I know that the best imported German Silver costs much more that the above estimate, but one cannot infer from this the price at which it could be made here on a large scale. Indeed, if the project of Dr. Feuchtwanger should be adopted, a great difficulty would be presented in determining the final weights to be given to the new coins. The specimen cent, which weighs 46 grains, would at 28 cents a pound for the metal, be worth less than one-fifth of cent, and to be of the proposed value would require the metal to be worth \$1.52 per pound. The memorial of Dr. Feuchtwanger seems to imply that the German Silver is his "invention," and to suppose that on this ground, he is to have a preference at least, if not a monopoly, for the supply to the Mint. It is scarcely necessary for me to state that there is no just foundation for either of these claims. On the whole it is my decided opinion in that it would not be proper to abandon our copper coinage in favor of the

proposed substitute; and you will observe that in presenting this opinion, I have not thought it necessary to bring to your view the many advantages belonging to the copper coinage; its profit to the government, (the only pecuniary offset to the expenses of the mint) the hold which it has on the habits of the people; and either the loss which would be sustained by its suppression or the confusion which would arise from a double circulation of the same class.

I am, sir, most respectfully Your faithful servant, R.M. Patterson, Director, U.S. Mint